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fiber, or organic polymer sintered products.

10. The nonaqueous electrolyte rechargeable battery according to claim 2, wherein the negative electrode material is a mixture of artificial graphite and styrene butadiene rubber.

11. The nonaqueous electrolyte rechargeable battery according to claim 8, wherein the negative electrode current collector is made of copper foil.----

REMARKS

Reconsideration and withdrawal of the rejections in the Office Action are respectfully requested in view of the following remarks.

Interview

Applicants thank the Examiner for the courtesy extended to their representative, Hong Xu, during the personal interview on June 17, 2003. During the interview, the Examiner suggested that claim 1 be amended to more clearly claim that the corona discharge treatment is performed on the electrode material.

During the interview, Applicants' representative pointed out to the Examiner that incorrect Application Serial No. and Inventor names appeared on the Office Action of March 21, 2003. The Examiner agreed to correct the Application Serial No. and Inventors names so that in the future Official Actions, correct the Application Serial No. and Inventors names will be on such Official Actions.

Summary of Amendment

The specification is amended to conform with U.S. practice. No new matter is added.

Claim 1 and 2 are amended to even more particularly claim the subject matter of the invention. Support can be found on page 5, lines 14-15, page 7, lines 13-16, and page 11, line 16. No new matter is added.

New claims 5-11 are added to claim additional subject matter of the invention. The support of these new claims can be found between page 7, line 7 to page 9, line 1, of the specification. Therefore, no new matter is added.

Summary of Office Action

Claims 1-4 are rejected under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 5,989,747 ("TANAKA"). The Office Action rejects claims 1-4 as anticipated or obvious over TANAKA. The Office Action states that TANAKA teaches a non-aqueous electrolyte rechargeable battery including a battery case, an electrolyte, a positive electrode plate with a positive electrode material, a negative electrode plate with a negative electrode material wherein the plates are wound with a separator in between (Figure 4). The Office Action further states that the battery electrodes are subject to corona discharge (Col 21, lines 50-65). The Office Action then concludes that TANAKA anticipates or renders obvious of the presently claimed invention.

Claims 1-3 are rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,989,747

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("TANAKA"). As discussed above, the Office Action alleges that TANAKA discloses all recitations of the claims and points out that TANAKA's electrodes are subject to corona discharge treatment.

Claims 1-3 are rejected under 35 U.S.C. §102(b) over JP 07-183,027 ("KENICHI"). The Office Action rejects claims 1-3 as anticipated by KENICHI. The Office Action states that KENICHI teaches a non-aqueous electrolyte rechargeable battery including a battery case, an electrolyte, a positive electrode plate with a positive electrode material, a negative electrode plate with a negative electrode material wherein the plates are wound with a separator in between (Figures). The Office Action further states that the battery electrodes are subject to corona discharge (Abstract). The Office Action then concludes that KENICHI anticipates the presently claimed invention.

Claim 4 is rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,989,747 ("TANAKA") or JP 07-183,027 ("KENICHI") and in view of JP 02304864 ("TOMOYA").

The Office Action admits that TANAKA and KENICHI do not teach that the separator of the battery is subject to corona discharge treatment. However, the Office Action states that TOMOYA teaches a battery wherein a separator is treated with corona discharge. The Office Action concludes that it would have been obvious to subject the separator of TANAKA and KENICHI to corona discharge treatment to improve its wettability and to lessen the effects of voltage defects or electrolyte leakage from the separator.

Response to Rejections

With respect to rejection of claims 1-4 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 5,989,747 ("TANAKA"), Applicants respectfully submit that TANAKA does not teach or suggest that the corona discharge treatment should be performed on the electrode material. Instead, as cited by the Office Action at column 21, lines 50-65, the corona discharge treatment in TANAKA is performed on the electrode sheet so that the electrode depolarizing mix solution can be uniformly coated on the surface of the stripe conductive sheet. Claims 1-4, as amended, recite, among other features, the performance of the corona discharge treatment on the electrode material of the electrode, not on the electrode itself. Also, there is no suggestion, explicitly or implicitly, in TANAKA to change its corona treatment to what is claimed in the present invention. For this reason alone, Applicants respectfully submit that the rejection should be withdrawn.

With respect to rejection of claims 1-3 under 35 U.S.C. §102(b) over U.S. Patent No. 5,989,747 ("TANAKA"), Applicants respectfully submit, as discussed above, that TANAKA does not teach that the corona discharge treatment be performed on the electrode material. Instead, in the portion cited by the Office Action (column 21, lines 50-65), the corona discharge treatment in TANAKA is performed on the electrode sheet so that the electrode depolarizing mix solution can be uniformly coated on the surface of the stripe conductive sheet. The presently claimed invention, as amended, performs the corona

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discharge treatment on the electrode material on the electrode, not on the electrode itself. Since TANAKA fails to disclose or teach each and every recitation of claims 1-3, the rejection should be withdrawn.

With respect to rejection of claims 1-3 under 35 U.S.C. §102(b) over JP 07-183,027 (“KENICHI”), Applicants respectfully submit that KENICHI does not teach that the corona discharge treatment should be performed on the positive electrode material. Instead, KENICHI discloses, in its abstract as cited by the Office Action, that “a carbonaceous material is used as its negative electrode... and the carbonaceous material is subject to a corona discharge process.” Therefore, KENICHI teaches that the corona discharge treatment is performed on the negative electrode made of carbonaceous material. On the contrary, the presently claimed invention, as amended, performs the corona discharge treatment on the positive electrode material coated onto the electrode, not on the electrode itself. Since KENICHI fails to disclose or teach each and every recitations of claims 1-3, the rejection should be withdrawn.

With respect to rejection of claim 4 under 35 U.S.C. §103(a) over U.S. Patent No. 5,989,747 (“TANAKA”) or JP 07-183,027 (“KENICHI”) and in view of JP 02304864 (“TOMOYA”), as discussed above, the primary cited documents TANAKA and KENICHI both fail to teach or disclose that, as recited in the amended claim 4, the corona discharge treatment is performed on the positive electrode material, not on the electrodes. Therefore, even if the combination of these documents with TOMOYA is proper, the combined

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documents still fail to disclose each and every recitations of the amended claim 4 of the present application.


Furthermore, it is well settled that in order to combine prior documents to arrive at the claimed invention, there must be some suggestions from the cited document. The Office Action alleges that the motivation to combine the cited documents to subject the separator of TANAKA and KENICHI to corona discharge treatment is to “improve the wettability of the separator providing improved ionic conduction. Further, it will lessen the effects of voltage defects or leakage from the separator.” Applicants respectfully submit that these alleged motivations, even if they are true, were not suggested by any of the cited documents and therefore the Office Action has not made a prima facie case of obviousness. For this reason and for reason discussed above that the combined teachings of these cited documents still fail to disclose each and every recitation of the claimed invention, the rejection is respectfully requested to be withdrawn.

CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to telephone the undersigned at the telephone number below.

Respectfully submitted.

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Appendix A. Marked-up version of the claim amendment.

1. A nonaqueous electrolyte rechargeable battery comprising:
an electrode group including a positive electrode plate having [including] a positive electrode current collector and a positive electrode material, a negative electrode plate, the positive and negative electrode plates being superposed and wound with a separator interposed therebetween;
an electrolyte; and
a battery case for accommodating the electrode group and the electrolyte; wherein:
corona discharge treatment is performed on [one of the positive electrode material and the positive electrode plate] the positive electrode material.
2. The nonaqueous electrolyte rechargeable battery according to claim 1 further comprising a negative electrode material, wherein corona discharge treatment is performed on one of the negative electrode material and the negative electrode plate.